



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,858	06/27/2003	Alan Michael Jaffee	7304	7146
7590 JOHNS MANVILLE Legal Department 10100 West Ute Avenue Littleton, CO 80127			EXAMINER CHOL, PETER Y	
			ART UNIT 1794	PAPER NUMBER
			MAIL DATE 01/29/2009	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* ALAN MICHAEL JAFFEE

---

Appeal 2008-5001  
Application 10/607,858  
Technology Center 2800

---

Decided: January 29, 2009

---

Before TERRY J. OWENS, PETER F. KRATZ, and KAREN M.  
HASTINGS, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL  
STATEMENT OF THE CASE

The Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-6, 8-15, 17-27 and 29-32. Claim 28, which is the only other pending claim, stands withdrawn from consideration by the Examiner. We have jurisdiction under 35 U.S.C. § 6(b).

*The Invention*

The Appellant claims a fibrous mat and a gypsum board that includes the fibrous mat. Claim 29 is illustrative:

29. A fibrous mat comprising a non-woven glass fiber web bonded together with a resinous binder, said glass fibers consisting essentially of chopped glass fibers having an average fiber diameter ranging from about 9.5 to 12.5  $\mu\text{m}$  and an average fiber length ranging from about 6 to 12 mm.

*The References*

*References relied upon by the Examiner*

Jaffee	5,772,846	Jun. 30, 1998
Horner	6,365,533 B1	Apr. 2, 2002
Carbo	7,056,582 B2	Jun. 6, 2006

(filed Apr. 17, 2003)

*Reference relied upon by the Appellants*

Gill	4,637,951	Jan. 20, 1987
------	-----------	---------------

*The Rejections*

The claims stand rejected under 35 U.S.C. § 103(a) as follows: claims 1-6, 8-15, 17-19, 21-24, 26, 27, and 29-32 over Jaffee; claim 20 over Jaffee in view of Horner; and claim 25 over Jaffee in view of Carbo.

OPINION

*Rejection under 35 U.S.C. § 103(a) of  
claims 1-6, 8-15, 17-19, 21-24, 26,  
27, and 29-32 over Jaffee*

The Appellant argues claims 1-6, 8-15, 17-19, 21-24, 26, 27, and 29-32 in the following groups: 1) claims 1, 27, 29, and 32, 2) claims 4-6, 3) claim 26, and 4) claim 31 (Br. 16-57). We therefore, limit our discussion to claims 26, 31 and one claim in each of the other groups, i.e., claims 29 and 4. The other claims in those groups stand or fall with the claim we address. The Appellant mentions claims 30 (Br. 52), but does not provide a substantive argument as to the separate patentability of that claim. Claim 30

and the other claims not separately argued stand or fall with the claim we address from which they depend. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007).

*Issue*

Has the Appellant shown reversible error in the Examiner's determination that Jaffee would have rendered the invention claimed in the Appellant's claims 4, 26, 29, and 31 *prima facie* obvious to one of ordinary skill in the art?

*Claim 29*

*Findings of Fact*

Jaffee discloses a nonwoven fibrous mat for use as a facer on gypsum insulating board (col. 1, ll. 6-12; col. 2, ll. 2-4).<sup>1</sup> Jaffee's mat preferably contains a major portion of glass fibers and a minor portion of polymer fibers (col. 2, ll. 38-39; col. 3, ll. 50-53). In Jaffee's Example 4, wet mats of various glass fiber types, diameters and lengths are made into mats using the process in Example 1 (except for a different binder and drying temperature) wherein the fibers are all chopped glass fibers (col. 4, l. 67 – col. 5, l. 1; col. 6, ll. 51-54). Jaffee's glass fibers typically have average diameters from about 9 microns to about 20 microns, preferably about 10 microns to about 16 microns (col. 3, ll. 38-41). When making a facer for insulated gypsum board, 16 micron diameter fibers are preferred (col. 3, ll. 41-42). In Jaffee's mat, "[g]lass lengths of one inch, 0.75 inch, half inch or one quarter inch can be used, but about 0.75 to about one inch lengths are preferred, especially when using 16 micron diameter fibers" (col. 3, ll. 58-61).

---

<sup>1</sup> The Examiner relies upon US 4,647,496 to Lehnert et al., incorporated by reference in Jaffee (col. 1, ll. 13-15), for a disclosure of nonwoven fibrous mat facing materials on both sides of a gypsum board (Ans. 11).

*Analysis*

The Appellant argues that Jaffee's mat comprises a blend of glass fibers and polymer fibers, and that the Appellant's claim limitation "glass fibers consisting essentially of chopped glass fibers" excludes polymer fibers (Br. 18, 21; Reply Br. 6-7).

Jaffee's blend of glass fibers and polymer fibers is merely a preferred embodiment (col. 2, ll. 38-39; col. 3, ll. 50-53). In Example 4, wet mats of various glass fiber types, diameters and cut lengths are made using the process of Example 1 (except for a different binder and drying temperature) wherein the fibers are all chopped glass fibers (col. 4, l. 67 – col. 5, l. 1; col. 6, ll. 51-54).

The Appellant argues that glass fibers are used without polymer fibers only in Jaffee's prior art Example 1 (Br. 18).

Glass fibers also are used in Jaffee's inventive Example 4 according to the Example 1 process, except for a different binder and drying temperature (col. 4, l. 67 – col. 5, l. 1; col. 6, ll. 51-54). As acknowledged by the Appellant (Br. 18) and disclosed in Example 1 (col. 4, l. 67 – col. 5, l. 1; col. 6, ll. 51-54), the fibers in Example 1 are all chopped glass fibers.

*Claim 31*

Claim 31 requires a fibrous mat having a permeability of at least about 300 cfm/ft<sup>2</sup> measured by the Frazier test.

The Appellant argues that Gill's disclosure that Gill's mat preferably has a porosity of no greater than 225 cfm/ft<sup>2</sup> measured by the Frazier test

(abstract) indicates that Jaffee's mat does not inherently have a permeability of at least about 300 cfm/ft<sup>2</sup> (Br. 53-56; Reply Br. 9-10).<sup>2</sup>

Gill's microfibers have a mean diameter of only about 1 micron (col. 3, ll. 27-30). The mat in the Appellant's Comparative Example 1 having an average fiber diameter of 13 microns has a Frazier permeability of 625 cfm/ft<sup>2</sup> (Spec. 14-15, Tables I, II). The mats in the Appellant's Examples 2-4 having an average fiber diameter of  $11 \pm 1.5$  microns have a Frazier permeability of, respectively, 800, 603 and 527 cfm/ft<sup>2</sup> (Spec. 15:23-24; 16, Table III). Thus, it appears that Jaffee's mats having fibers with average diameters in the range from about 9 microns to about 20 microns (col. 3, ll. 38-39), which are comparable to the average fiber diameters in the Appellant's examples, have high permeabilities like those of the Appellant's examples rather than the lower permeability of Gill's mat containing much thinner fibers. Moreover, the mats in Examples 3-8 of US 6,187,697 B1 to Jaffee et al., relied upon by the Examiner in rebuttal to the Appellant's argument (Ans. 14-15), have a 10 micron diameter, a length of 0.5 inch, and an air permeability of 320-580 cfm/ft<sup>2</sup>. The fibers in those mats are within Jaffee '846's range of about 9 to about 20 microns average diameter and a quarter inch to one inch length (col. 3, ll. 38-39, 58-61), and have air permeabilities within the range in the Appellant's claim 31 rather than in Gill's lower range.

---

<sup>2</sup> The maximum porosity disclosed by Gill is about 260 cfm/ft<sup>2</sup> (col. 2, ll. 24-28).

#### Claim 4

Claim 4 requires that at least about 90 wt% of chopped glass fibers have a diameter ranging between about 9.5 and 12.5 microns.

The Appellant argues that there is no disclosure in Jaffee that calls for a narrow range of fiber diameters (Br. 47-48).

Jaffee's disclosure that the glass fibers are chopped glass fibers and typically have average diameters from about 9 microns to about 20 microns (col. 3, ll. 38-39; col. 4, l. 67) would have indicated to one of ordinary skill in the art that all of the chopped glass fibers can have an average diameter within that range which includes the Appellant's range of between about 9.5 and 12.5 microns.

#### Claim 26

Claim 26 requires a flame resistance sufficient to pass the test of ASTM Method E84, Class 1.

The Appellant argues that Jaffee's mat has a high loss on ignition because it includes polyester fibers (Br. 51).

Jaffee prefers a minor portion of polymer fibers such as polyester fibers (col. 2, ll. 37-40), but the mat can be made by the process of prior art Example 1 wherein the mat contains no polyester fibers (col. 4, l. 66 – col. 5, l. 6; col. 6, ll. 51-54). The mat in Example 1 is self-extinguishing (col. 5, l. 30), i.e., it has the high flame resistance required by the Appellant's claim 1.

#### *Conclusion of Law*

The Appellant has not shown reversible error in the Examiner's determination that Jaffee would have rendered the invention claimed in the

Appellant's claims 4, 26, 29, and 31 prima facie obvious to one of ordinary skill in the art.

*Issue*

Has the Appellant shown reversible error in the Examiner's determination that the Appellant's Declarations fail to overcome the prima facie case of obviousness?

*Analysis*

The Appellant argues that two Declarations (Declaration I filed May 3, 2006, and Declaration II filed Oct. 24, 2006) by inventor Jaffee show surprising and unexpected results (Br. 30-46).<sup>3</sup>

In Declaration I Jaffee measures smoothness of a gypsum board by shining light onto its surface at an angle, capturing images of the surface using a camera, analyzing the images using computer software to determine an average intensity, calculating a standard deviation across all pixels in the image, and calculating a standard error by dividing the standard deviation by the average intensity (Decl. I: ¶ 12). Jaffee states that in his opinion, lower standard deviation indicates a smoother surface (Decl. I: ¶ 15). A test (sample 2) within the Appellant's claim 1 (11 micron average fiber diameter, 12 mm average fiber length) shows a standard deviation of 7.6%, whereas three tests (samples 1, 3 and 4) outside claim 1 show standard deviations of 9.5% (13 micron average fiber diameter, 19 mm average fiber length), 8.3% (8 micron average fiber diameter, 9 mm average fiber length), and 9.3%

---

<sup>3</sup> Jaffee relies upon Declaration II for evidence that the average fiber length in Examples 2-4 of the Specification is about 12 mm (Decl. II: ¶ 5). The average fiber diameter in those examples is  $11 \pm 1.5$  microns (Spec. 15:21-24).



(11 micron average fiber diameter, 19 mm average fiber length). (Decl. I: ¶ 14). Jaffee states that the test results were corroborated by visual observation. (Decl. I: ¶ 16). The results were surprising, Jaffee states, because “a skilled artisan would have inferred that the smoothest surface would result from fabrication gypsum board with mat having the smallest fiber diameter” (Decl. I: ¶ 17).

For the following reasons, the evidence is not effective for overcoming the prima facie case of obviousness.

First, Jaffee has not established that the test using camera images, software and visual observation is an art recognized test or is reliable. Also, only one test was carried out for each fiber diameter and length, and Jaffee has not established that the test is repeatable. Moreover, the cause-and-effect relationship between standard error and surface smoothness is lost in a multiple unfixed variables. *See In re Heyna*, 360 F.2d 222, 228 (CCPA 1966); *In re Dunn*, 349 F.2d 433, 439 (CCPA 1965). Jaffee changed not only the average fiber diameter and length, but also the average intensity (Decl. I: ¶ 14). If, for samples 1 and 4, the same standard deviation were obtained at the 1837 average intensity used for the Appellant’s inventive sample 2, the standard errors would be, respectively, 7.9% and 7.8%, which are very close to the 7.6% for the Appellant’s inventive sample 2.

Second, it is not enough for the Appellant to show that the results for the Appellant’s invention and the comparative examples differ. The difference must be shown to be an unexpected difference. *See In re Freeman*, 474 F.2d 1318, 1324 (CCPA 1973); *In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972). Jaffee states that one of ordinary skill in the art would

have expected that a smoother surface would be obtained using a smaller fiber diameter (Decl. I, ¶ 17), but Jaffee has not established that one of ordinary skill in the art would not have expected a larger length to diameter ratio than that in sample 3 to produce a smoother surface.

Third, the evidence is not commensurate in scope with the claims. *See In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983); *In re Clemens*, 622 F.2d 1029, 1035 (CCPA 1980). The Appellant's claim 1 encompasses average fiber diameters from about 9.5 to 12.5 microns, and average fiber lengths from about 6 to 12 mm, yet Jaffee provides only one sample at an average fiber diameter of 11 microns and an average fiber length of 12 microns. We find in the evidence of record no reasonable basis for concluding that mats made of fibers having the other average diameters and lengths encompassed by the Appellant's claims would behave as a class in the same manner as the particular sample tested. *See In re Lindner*, 457 F.2d 506, 508 (CCPA 1972); *In re Susi*, 440 F.2d 442, 445-46 (CCPA 1971).

*Conclusion of Law*

The Appellant has not shown reversible error in the Examiner's determination that the Appellant's Declarations fail to overcome the prima facie case of obviousness.

*Rejections under 35 U.S.C. § 103(a) of claim 20  
over Jaffee in view of Horner, and  
claim 25 over Jaffee in view of Carbo*

Regarding the rejection of claims 20 and 25, the Appellant argues that Horner and Carbo do not remedy the deficiency in Jaffee as to claim 1 (Br. 58-59). As discussed above, that deficiency does not exist. Regarding

claim 20 the Appellant argues that Horner, which discloses a kraft paper facer (col. 6, ll. 13), does not disclose a gypsum board product (Reply Br. 13-14). That argument is not persuasive in view of the Appellant's disclosure that kraft paper is what normally is used as the lower facing sheet of gypsum board (Spec. 1:27-28).

Hence, we are not persuaded of reversible error in the rejection of claims 20 and 25.

#### DECISION/ORDER

The rejections under 35 U.S.C. § 103(a) of claims 1-6, 8-15, 17-19, 21-24, 26, 27, and 29-32 over Jaffee, claim 20 over Jaffee in view of Horner, and claim 25 over Jaffee in view of Carbo are affirmed.

It is ordered that the Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

PL Initial:  
sld

JOHNS MANVILLE  
LEGAL DEPARTMENT  
10100 WEST UTE AVE.  
LITTLETON, CO 80127